

the soil's ability to absorb and hold moisture, and reducing soil erosion. They can be helpful for establishing vegetation on a site for erosion-control and land-reclamation projects. The cost of managing our treated sewage sludge wastes falls on us as taxpayers. Applying biosolids to land costs 50-75 percent less than disposing the same material at a landfill. While highly contaminated treated sewage



sludge should be disposed of in a landfill, land application remains a viable option for managing some of our wastes when responsible local controls are in place. Appropriately managing the land application of biosolids and taking advantage of the beneficial aspects will insure that biosolids applications are handled in the most protective way as justified by current scientific studies and knowledge.

What are the risks of applying biosolids to land?

Biosolids are a complex mixture that can contain pollutants from household, commercial and industrial wastewaters such as metals, pathogens (which are disease-causing organisms), and chemical pollutants such as medicines and synthetic organic compounds like polychlorinated biphenyls (PCBs). At uncontrolled levels, these pollutants could accumulate in soils or crops, which could potentially affect our health and the health of animals, as well as the longstanding health of our lands and waters. However, pollutant levels can be controlled and one must recognize that fertilizers and pesticides also pose similar types of risks. Generally, we can manage these risks by: (1) promoting proper pollutant source control and disposal of household and business hazardous wastes, (2) assessing biosolids quality, (3) assuring appropriate land types and use for application while verifying compatibility with surrounding areas, (4) determining appropriate soil, landscape, and crop or vegetative conditions for biosolids use or restriction, (5) monitoring and overseeing transport, storage, application and land use during and after application, and (6) limiting harvest or grazing until appropriate time periods have elapsed. These components are all included in current federal and state regulations. Additional protective measures, such as local government and public notification, will be refined through amendments to the state regulations.

For more information...

Please see the Virginia Department of Health
Office of Environmental Health Services Web site at
<http://www.vdh.virginia.gov/oehs>
or call (804) 864-7473.

Information About Biosolids Land Application



What are biosolids?

Treated sewage sludge, also known as biosolids, is a material formed when wastewater is processed at a treatment plant. Biosolids contain nutrients and organic matter that are useful to plants. Sewage sludge can be treated, processed and used as a soil amendment and nutrient source to improve and maintain productive soils and stimulate plant growth. However, contaminants including metals such as arsenic, cadmium, and mercury, organic chemical pollutants and disease causing organisms may be present in low levels in the material.

How are biosolids treated?

When sewage enters a wastewater treatment facility, it goes through many processes. Typically, wastewater enters the treatment plant through screens, where large and heavier materials like sand, gravel and plastics are removed. After the initial screening, the sewage goes through a process where the wastewater is slowed down and smaller solids are allowed to settle out. This is called primary clarification. The solids, called sludge at this stage, are often sent to a digester, which breaks down and decomposes organic matter. The liquids that went through primary clarification are treated with microorganisms that consume the nutrients in the wastewater. After the microorganisms have done their work, they must be removed from the system just as the primary solids were. The products resulting from digestion have value as nutrients and soil conditioners. When sludge has been treated and meets standards that allow it to be applied to land, it is then called biosolids. It is important to understand that there are many wastewater treatment and sludge treatment processes, and that they are combined in many different ways. If you want to know how your local treatment plant works, call and ask for a tour.

How much biosolids is land applied in Virginia?

During 2004, approximately 232,000 dry tons of biosolids were land applied to roughly 50,500 acres in 48 of the 53 counties with permitted land application sites permitted by the Virginia Department of Health (VDH) in the Commonwealth. Additional use and disposal practices for biosolids include sending the material to local landfills as either waste or soil amendment and composting with other organic materials.

How can this material be managed responsibly?

The way to assure the safety and welfare for our lands, water, animals and people for current and future generations is to take a cautionary approach and have state and local control over the uses of biosolids. With a biosolids management program including strict standards, conditions, and prohibitions, VDH believes that the appropriate mechanism will be in place to assure the health, welfare and safety of all.

What is changing?

Prior to the development of the Biosolids Use Regulations and local ordinances, there was no site specific management plan requirements or local controls for where, how, when, what kind or how much biosolids could be applied in Virginia. Currently, VDH regulations ensure that only biosolids that meet strict requirements that assure the health, safety and welfare of people, animals, soil and water quality are applied, and only on approved land classifications with ongoing specific testing, notification and monitoring. The Biosolids Use Regulations are more restrictive than federal requirements, yet still provide the capability to use the material for those who would like to do so.

VDH has established a Biosolids Use Regulations Advisory Committee (BURAC), the Biosolids Use Information Committee (BUIC) and the Biosolids Working Group to further study the land application of biosolids in Virginia. The BURAC meets on a quarterly basis to discuss amendments to the current regulations. The Biosolids Working Group, established by the State Health Commissioner, is comprised of health professionals, including physicians, local health directors and epidemiologists.

How is the land application of biosolids regulated?

VDH encourages counties to adopt an approved local ordinance to assure local monitoring and protection of county lands, as well as assure the safety and welfare of all those who live, work and play in the county. VDH and the local monitor will closely monitor the use of biosolids and prohibit biosolids use in areas with high public contact, on certain food crops, and on inappropriate or sensitive ecological areas. Each potential application site will have site specific requirements including the testing of soils and biosolids, nutrient management plans, disclosure to the public and land owner, detailed monitoring and reporting and inspections. While no evidence has been found of a public health risk from exposure to land applied biosolids, studies have found that the science used to determine federal standards needs to be updated as chemicals, treatments and technologies have changed.

What are the benefits of applying biosolids to land?

Since biosolids are a byproduct of the foods we eat, they contain important nutrients such as nitrogen, phosphorus and potassium, as well as other nutrients such as copper, manganese, and zinc. These nutrients are essential for plant growth. Since different crops and soil conditions require varying quantities of these nutrients, a nutrient management plan is important so that nutrients are applied at the rates that the vegetation will use. Excess nutrients can negatively impact groundwater. Biosolids also improve soil structure by adding organic matter, increasing